

UNDERSTANDING INCLUSIVE EDUCATION AND ITS IMPACT ON ARCHITECTURE

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Abstract

This study aims to explore and understand how architectural form, space, and the built environment can act as a stimulant in improvement of lives of disabled children. The concept and importance of inclusive education are discussed while highlighting architectural barriers as one of the main causes for the exclusion of children with disabilities. The research focuses on understanding the symptoms and effects of disablement, for a more careful understanding of the specific accommodations and requirements of a disabled user. This paper attempts to address how sensory perception issues and physical disabilities (such as blindness and mobility impairments) affect the design of buildings. Based on building codes and regulations in the field of inclusive schools, aspects such as movement, space, color, light, shape, patterns, and way finding are thoroughly analyzed. The importance of nature concerning the well-being and the psychology of children is also looked into, as well as providing safety for children in any type of environment. Analysis and discussions of how the architectural environments can have a direct and lasting impact on the growth and development of children are presented in conclusion.

Keywords: Inclusive education, children, disability, architectural barriers, sensory issues, inclusive design.

1 Introduction

For the entire world to become equal, it needs to start with education. People need a good education to be able to survive in this modern competitive society. Regardless of various international movements, human rights activists, and specialists who fight for acceptance of the differences as a critical step towards a better quality of life, many groups of people are not provided with the same education opportunities. People living in poverty, remote rural environments, girls and women, indigenous people, migrants, people from minority language groups, working and street children, those affected by HIV/AIDS and other health conditions, people with disabilities – of all ages, represent the groups at highest risk to be excluded from education (Stubbs, 2008).

Even when the right to education is acknowledged, the type and location of education remain much debated. Stubbs (2008) observed that some of the concepts and strategies are often misunderstood, and the difference between them is rarely recognized. So, to avoid misinterpretation, decided to describe some of the approaches that are implemented more often, as:

Special Education: This approach assumes that there is a separate group of children who have “special educational needs” and should be educated in “special environments”, by “special teachers”, while using “special methods” and “special equipment”. Rather than respecting their characteristics and accepting their differences, it segregates children into distinctive groups and sees the child as the problem.

Integrated Education: This term describes the process of accepting children with disabilities in a mainstream school. It often involves moving a child physically into the school and ignores issues such as

whether the child is really learning, really being accepted and included. The “integrated” child will either receive the individual attention that separates them from their peers or will just be left to get through within a rigid mainstream system with no support.

Small Units: It represents segregation in closer proximity. Special classrooms or buildings are physically attached to a mainstream school, but have special teachers and are used for children with “special educational needs” only. The interaction between disabled and neurotypical children is still denied.

Inclusive Education: Inclusive education is about responding to diversity in all its forms and creating an education system to accommodate all. Inclusion is the process of adjusting educational settings, curricula, and buildings, to be able to include different pupils to receive appropriate education in one place. The idea is to understand and respect pupils’ differences, variations in their abilities, and uniqueness. (Stubbs, 2008)

As mentioned above inclusive education is about acceptance and inclusion of all vulnerable groups, but considering that people with disabilities are the most universally excluded from education, inclusive education is often associated with the inclusion of people with disabilities. While many factors (as prejudice and poverty) contribute to this phenomenon, architectural barriers are often the root cause for the exclusion of children with disabilities. For their health and well-being, we must contribute for disabled children to have satisfactory childhoods and the built environment can have a hand in this.

2 Understanding the user

For successful inclusion and inclusive design, understanding the different types of disabilities is extremely important. Referring to “*Building bulletin 102: Designing for disabled children and children with special educational needs-Guidance for mainstream and special schools*” even though every child is unique, and that there is a wide range of different/special needs, their special educational needs may fall into one of four main categories:

Cognition and learning: Children who have these needs learn at a slower speed than their peers, requiring specific strategies and practical sensory or physical experiences to help their learning and understanding.

Design issues and requirements: good acoustics for speech and language therapy, good visibility for supervision, storage and use of mobility & learning aids, way finding to aid independence, higher accessibility standards, flexible layouts, the appropriate positioning of the child in class, therapy workspaces (Hawkins, et al., 2014).

Behavioral, emotional, and social: Young people may find difficulty in successfully managing their emotions, be withdrawn, anxious and scared regularly, or hyperactive. Children who have these needs demand extra space to move around and to ensure a comfortable distance between themselves and others. They may have attacks and need a safe place to calm down.

Design issues and requirements: good sightlines, balance between privacy and ease of overseeing children, storage, robust materials, large spaces for social and outdoor activities, varying layouts, quiet/informal corner (Hawkins, et al., 2014).

Communication and interaction: Children with these needs require support in understanding and using language, and may need specialist support, speech or language therapy, and a quiet workplace. Children with autistic spectrum disorder have difficulty interacting with others.

Design issues and requirements: easily understood school layout with clear signage, good lighting, room acoustics and sound insulation, use of signs, symbols, communication aids and synthetic speech production equipment, good acoustics for speech and language therapy (Hawkins, et al., 2014).

Sensory and/or physical: There is a broad range of sensory, multi-sensory, and physical difficulties. Visual impairment, blindness, limited hearing, deafness, multiple disabilities (including deaf-blindness), motor impairments, autism, and other similar conditions make it difficult to involve the child in daily activities.

Hearing impairment is a partial or total inability to hear. A blind individual is unable to see. Werner (1987) declared that most blind children can see a little and some can see the difference between light and dark, but cannot differentiate the shapes of objects, while others can see only large objects. Blind children use their hands and ears to orient themselves. They easily remember objects, walls, and other things that are placed in certain positions in rooms or spaces, and they use them as landmarks within the environment to understand where they are. Braille is a system of reading and writing for blind children, in which raised dots denote letters and numbers and which can be read through touch, with the fingertips. (Werner, 1987)

Design issues and requirements for HI (Hearing impairment), VI (Visual impairment), multi-sensory impairment MSI: clear, simple layout for sensory way finding with visual contrast, cues, symbols, tactile trails & maps, good quality low glare lighting, avoiding shadows & silhouetting, good quality acoustics, low background noise, visual alarms, sounder alarms, storage & maintenance of technical aids, U-shaped or other layouts for good visibility, multi-sensory work, etc. (Hawkins, et al., 2014)

Cerebral Palsy is a disabling physical condition in which muscle coordination is impaired due to damage of the brain. It affects movement and body position. Medicines usually do not help children with forms of cerebral palsy and the damaged parts of the brain cannot be repaired. Most children have a problem moving from one place to another. There are many different ways to help children who cannot walk, through the use of wheelchairs, crutches, braces, special walkers, or hand – pedal tricycles (Mistrey, 2011).

Design issues and requirements for physical disability: higher accessibility standards, equipment store, storage bays off corridors, shallow pitch stairs, rest places, assisted emergency escape, evacuation lifts, space for carvers & equipment storage. (Hawkins, et al., 2014)

Leestma (2015) states that: “for some people with a special need, especially those with autism, the physical medium such as the eyes or ears functions properly. However, the process of perception is different. These different sensory perceptions can cause pain, anxiety, fear confusion, and cause autistic people to act in abnormal ways when trying to block unwanted stimuli. Some of the most common differences in sensory perception are intensity, sensory overload, gestalt perception, fragmented perception, delayed perception, distorted perception, sensory shutdowns, and compensation”.

To explain the process of perception in these children, we chose a picture of a kindergarten, and added effects to the picture, to represent the visual perception according to the above-mentioned disorders.



Figure 1. Normal perception of an interior of kindergarten in Poland, (source: <https://www.archdaily.com/521495/kindergarten-in-chroscice-port>)

Intensity-Hypersensitive: Hypersensitivity appears when autistic children are oversensitive to sensory information. They dislike bright lights, look down most of the time, and maybe frightened by sharp flashes of light. For some, the smell or taste of any food is too strong, and they reject it no matter how hungry they are usually frightened by sudden unpredictable sounds (telephone ringing, a vacuum cleaner, baby crying). To block out the stimulus which the brain cannot tolerate, an autistic individual might hit their ears, press their eyes, twist, or make repetitive noises to block out other disturbing sounds (Daly, Daneski, Ellen, Sue, & Hawkins, 2007).

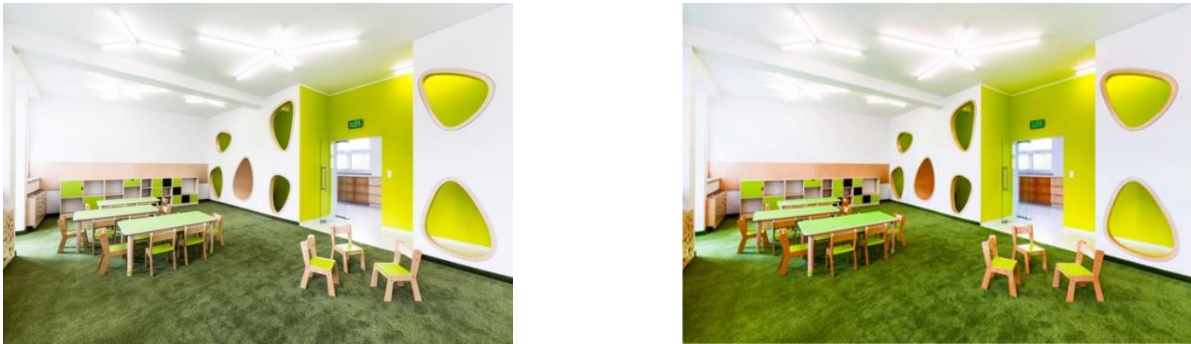


Figure 2. A neurotypical view compared to hypersensitive (analysis by the authors)

Intensity-Hyposensitive: Hyposensitive is the opposite of hypersensitive, the channel is not open enough and as a result, not enough information gets to the brain. An individual may not be able to see the world around them.

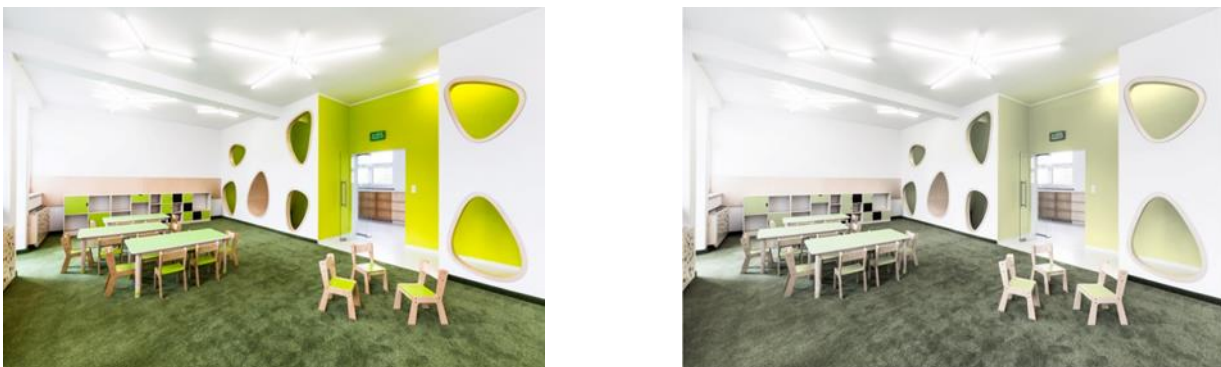


Figure 3. A neurotypical view compared to hyposensitive (analysis by the authors)

To get their nervous system working better an autistic individual might seek out loud noises, wear tight clothing or self-injure. These individuals are attracted to lights; they are fascinated with reflections and bright colored objects. (Bogdashina, 2006)

Sensory Overload: Sensory overload happens when there is too much information coming in at once. The brains of autistic individuals are not able to filter out irrelevant information such as background noise, patterns on walls, so they have to process everything at once instead of what is relevant at the time, resulting in physical symptoms as headaches, anxiety, panic attacks or aggression (Daly, Daneski, Ellen, Sue, & Hawkins, 2007).



Figure 4. A neurotypical view compared to sensory overload (analysis by the author)

Gestalt Perception: Gestalt perception is the inability to filter foreground and background information, so everything is perceived as a “whole”. Someone with gestalt perception will have difficulty if one slight detail is changed. For example, if a piece of furniture has been moved, the environment will feel unfamiliar and therefore can cause fear, stress, and frustration. A child with auditory gestalt perception has great difficulty concentrating on one auditory stimulus, as their ears seem to pick up all sounds with equal intensity (Leestma, 2015).



Figure 5. A neurotypical view compared to gestalt perception (analysis by the author)

Fragmented Perception: Some people with autism might process part of a scene or sentence and completely ignore the other parts, this is referred to as fragmented perception. This could result in overly narrow focusing of attention.



Figure 6. A neurotypical view compared to fragmented perception (analysis by the author)

Delayed Processing: delayed processing is when the process of perception takes extensive time. Delayed processing can make it hard to learn things in an appropriate setting. If an individual learns a skill in one location, they may not be able to transfer that skill to a new one and will have to relearn it. (Daly, Daneski, Ellen, Sue, & Hawkins, 2007)



Figure 7. A neurotypical view compared to delayed processing (analysis by the author)

Sensory Shutdown: Sensory shutdowns happen when all or some of the senses are being overloaded and the person is unable to cope. When sensory input becomes too intense (and often painful) a child learns to shut off his sensory channels and withdraw into his world.



Figure 8. A neurotypical view compared to sensory shutdown (analysis by the author)

Schools need to be adaptable to teach students with all degrees of perception issues and be able to adapt the environment to a student's specific needs.

Design issues and requirements for Autistic spectrum disorder ASD: simple layout, calm, ordered, low stimulus spaces, no confusing large spaces, indirect lighting, no glare, subdued colors, good acoustics, avoiding sudden/background noise, robust materials, safe indoor and outdoor places for withdrawal and to calm down (Hawkins, et al., 2014).

Table 1. Design requirements for inclusive schools according to pupils' needs

Special needs		CaL	BEaS	CaI	SaP
Design requirements					
Physical movement	Easily understood layout	√	√	√	√
	Accessibility	√	-	-	√
	Clear signage and symbols	√	√	√	√
Adequate and flexible spaces	Large and flexible spaces	√	√	√	√
	Storage	√	√	-	√
	Therapy workspaces	√	√	√	√
Furniture	Flexible and adjustable furniture	-	√	√	√
Visual aspects	Good lighting	-	-	√	√
	Use of appropriate colors	-	-	√	√
Acoustic aspects	Good acoustics	√	√	√	√
Safety	Supervision	√	√	-	√
	Robust materials	-	√	-	√
Outdoor activities	Sensory gardens	-	√	-	√

3 Inclusive design principles

As a starting point, an understanding of the different types of disabilities (their causes and symptoms) is an important element to enhance a successful design solution. According to the analysis of user needs results that the main elements which should be considered when designing for disabled children are: physical movement (access and way-finding), safety (evacuation, body control, aggressive behaviors, and accidents), adequate and flexible spaces, furniture, stimulating the senses (visual and acoustic aspects), escape spaces, etc. The descriptions below are based on building codes and regulations in the field of inclusive schools.

3.1 *Physical movement (Access and way-finding)*

An accessible environment is particularly relevant for children with disabilities, since it allows them to take part in school activities alongside their peers. The approach from gate to entrance doors should have designated safe pedestrian routes, some people have less awareness of the risks of traffic (or cannot see/hear vehicles) and this should be taken into account when the site is planned, adding good quality external lighting for routes, signage and visual contrast. The school building's entrance should have: sheltered, accessible waiting spaces, easily operated doors, sufficient circulation space for everyone (including those in wheelchairs). (Hawkins, et al., 2014)

People with disabilities, especially those who use mobility aids, need minimized travel distances, wide enough routes, easily accessible, without trip hazards. Some children who can walk but have limited mobility may find it more difficult to negotiate a ramp than a short staircase, so a choice of paths should be provided. Some children may need handrails along corridors. Ramps, steps, stairs, and lifts need to be designed to be suitable for people with disabilities.

Circulation patterns, in the form of paths and roads, should be clear since children become nervous when orientation is confusing. To avoid disturbing behavior, it is appropriate to use one of the following elements to define paths:

- Contrasting textures or finishing floors
- Contrasting colors or tones
- Sound signals that respond to movement
- Signs at intersections to indicate direction or position

People who are blind generally have intensified senses of touch, hearing, and smell, which develop over time. For them, architectural environments should have enhanced aspects of textures, echoes from surfaces, and particular smells in specific places to help them remember places and thus find their surroundings legible and easy to navigate (Arthur & Passini, 1992).

3.2 *Safety*

When children feel safe and protected, they are free from worry and can focus their attention on playing, learning, and developing. One of the first steps in ensuring the success of any building is to take account of emergency escape procedures. Standard details may not be enough to provide security and safety for all children. Lifts with very wide doors and very large sizes may be needed to ensure all children can be evacuated quickly and safely. Evacuation lifts should be fire resistant and have a separate electrical supply. In the event of a fire, many people with disabilities will not be able to use the doors without assistance. All exterior doors should be easy to use or automatic. Where there are diverse needs, alternative alarm systems may be used: voice alarm systems, visual alarms, or vibrating paging systems for the hearing impaired and other disabled people. (Hawkins, et al., 2014)

Children with autism occasionally show tendencies to injure themselves or display aggressive behaviors towards others. (Bogdashina, 2006) Precautions need to be taken to ensure that the children are being

constantly supervised. But there must be a balance between the need for security and that for independence. Soft materials are less likely to cause harm if the child falls, behaves violently, or has an accident. Floors should be smooth and slip-resistant in dry and wet situations. There must be a balance between softness and strength, taking into account the use of moving equipment.

3.3 *Adequate and flexible spaces*

Flexible learning environments are suitable for everyday use and adaptable over time to meet the current and future needs of children with disabilities. Spaces should be allowed to change, furniture and equipment may have to be re-arranged daily to suit varied groupings, and diverse activities. Some children with special needs, as a child learning how to use aids and maneuver equipment, a member of staff walking beside a child with visual impairment or children with hearing impairment who sign and gesticulate, need considerably more space than usual, so circulation spaces and learning environments need to be properly designed to complement their specific needs.

The environment could change based on the activity, be divided into multiple small areas, or exist as one large space. However, these changes should not evoke fear that the environment will suddenly be unfamiliar. Some autistic children may have different perceptions of spaces, as some may feel afraid of large open spaces and prefer being in smaller spaces, others may not like enclosed spaces, so a mix of larger spaces with smaller ones to be reached when needed is helpful (Leestma, 2015).

Linking a smaller space with the main teaching classroom is a great idea for individual or small-group work, therapy, meetings, and storage. It can be also used as a quiet space for a child if they feel uncomfortable and need to work alone. Enough spaces are needed for storing additional equipment, learning aids, mobility devices, different teaching resources, and lockable units for pupils' personal belongings.

All pupils should have the chance to choose their preferred places in the class. Some pupils may need to see the teacher and learning materials nearby. For example, it would be helpful for pupils with hearing difficulties to sit near the front of the classroom, as they may need to read the teacher's lip while talking.

Where a school has pupils with severe disabilities, it is quite hard to reach a fit-all toilet's design. Because some pupils may need helpers to assist them, others may require grab rails or back support to help themselves to move, the layout, fixtures, and fittings should reflect the age of the children and help them develop personal care skills. At least one toilet should have enough large space for a wheelchair, helpers; grab rails, hoists, and other important equipment. Doors should have the option of outwards opening, and an alarm system is required so pupils can call for help. For wheelchair users, wash hand basins may be adjustable height or fixed height with a knee recess. (Hawkins, et al., 2014)

Spaces for physiotherapy, hydrotherapy, sensory learning, should be specially designed according to their nature. A sensory room is a space designed to help a child with sensory problems learn to regulate the brain's negative reactions to external stimuli by providing a range of different experiences including touch, sight, sound, and smell. (Bogdashina, 2006) These experiences are important for pupils with severe learning difficulties, sensory impairments like those with visual and some physical impairments. The content and design of the sensory room should be tailored to the needs of each person, and there are various elements or equipment that help to design these rooms, as light and projections, water bed, sensory corner: including bubbles, fiber optics, and color changes.

3.4 *Furniture*

Providing appropriate, flexible, and easily adaptable furniture that responds to different needs, helps children participate to teaching, learning, and social activities, regardless of their disability. Work surfaces need to be at a suitable height both for a child's size and for any special needs. It is critical to consider: the appropriate dimensions of furniture elements, and the height of objects like counters, desks, benches,

computer workstations, signs, displays, light switches, mirrors, sinks, etc. It may be helpful to provide different table heights (or height-adjustable tables, but this can be more expensive). (Hawkins, et al., 2014)

Use of colors, to provide visual contrast to the surroundings, helps pupils identify and locate furniture and equipment. All elements should have rounded finishing, especially on exposed edges. In different places like corridors or toilets, grab handles are needed to help pupils who confront standing difficulties. Room layouts should allow enough spaces around furniture for the movement of wheelchair users and other mobility aids.

3.5 *Visual aspects*

Natural lighting is important for all pupils; however, some pupils with special educational needs may be particularly sensitive to glare from direct or reflected sunlight, so it is important to be able to control the light entering the space. (Bogdashina, 2006) Materials of walls and floors and their effect with lighting should be controlled not to cause glare, confusing shadows, or reflections. When choosing the artificial lighting units, fluorescent lighting should be avoided as it produces a magnetic field that could affect hearing aids of pupils with hearing impairments. Natural light improves academic performance, relaxes students, permits better concentration, and reduces hyperactivity in children. Natural light should be provided in all rooms and used as much as possible. Windows should be placed above eye level, to reduce the view to the exterior. Lights in classrooms should be equipped with dimmers to allow greater control over the lighting. When there are large numbers of children with impaired vision or light sensitivity, or when there are opposite needs, specialized lighting advice may be needed (Day, 2003).

The use of color palettes in learning environments needs to be carefully considered. Color is vital to the psychological and physiological well-being of children and appropriate colors are important in creating the correct studying environments. Using contrasting colors for elements in rooms such as hooks, beams, tables, chairs and rails could be a good way to help pupils identify different spaces and areas, can transform room moods and can be used to enhance spatial quality. Colors may even have volume and temperature associations. Light or pale colors can make spaces appear bigger and airier, while darker hues decrease the apparent size of a room. Red, orange, and yellow are warm colors that promote activity. Cool colors such as blue, purple, and white encourage tranquility. Color also can indicate warmth or coolness but this depends on people's individual associations with color. Yellow, red, and orange are associated with the sun and can make people feel warmer, whilst blues and greens are associated with water and can thus make people feel cooler (Mahnke, 1996).

Day (2007) specifies that children under the age of six need warm, clear, motherly colors, such as reds, yellows, and oranges since they are led by activity and not by feelings. Older children are seen to prefer calming colors as tones of blues. Smaller children express themselves through art, and the colors they use express how they feel, likewise architects can use colors to have an influential effect on a child's feelings. Cheerful colors create warmer and better environments for children. Cooler colors such as blues, grays, and purples have a calming effect on students (Day, 2003). Color should be considered in terms of light level, visibility, maintenance, and psychological effect.

Colors can affect the nervous system as well as mental abilities. Autistic children see colors with far greater intensity than neurotypical students. Because autistic individuals may have a significant increase in color differentiation, small changes in color can dramatically affect their behavior. (Humphreys, 2008)

3.6 *Acoustic aspects*

A quality acoustic environment should be a priority. Shape and proportions of spaces directly affect the acoustic quality, for example large halls should be carefully designed not to have many echoes that badly affect some pupils or make it hard for them to hear and understand. Sliding folding partitions between spaces can increase flexibility, but it can be difficult to provide adequate sound insulation, especially for hearing-impaired children. Poor acoustic conditions, such as noise distraction and high ambient noise

levels, are particularly unacceptable where there are children with sensory impairments. A good acoustic design aims at enabling users to hear clearly without distraction. Noise should not be removed but controlled, as some pupils use background noises to navigate around the school as those with visual impairments.

Parents and teachers ranked acoustics as the most influential feature of the sensory environment on autistic behavior. In most cases, the sense of calm that comes with quieter spaces encourages better behavior in students and allows them to focus on learning. (Leestma, 2015)

Leestma (2015) suggests use of carpets on the floor as they reduce the impact of foot traffic and absorb sound. Rough and textured finishes can break up sound waves and reduce noise reverberations. Classrooms should be placed an appropriate distance from the road to reduce the noise from traffic. Hard surfaces should be avoided in the classrooms. Natural ventilation can be used to reduce of HVAC systems and their noise.

4 The role of nature in child development

Nature is seen to be important to children's development in every way; emotionally, intellectually, socially, physically and spiritually (Wilson, 2008). Children naturally want to play outdoors, in the garden, as the fresh air and nature can have a calming effect on them. Creative outdoor areas can provide students and adults with special needs the opportunity to explore social contact, as well as provide places for tranquility.

Gardening can be seen to balance fine and gross motor movements and teach children patience and responsibility (Hebert, 2003). Different levels and scales of space in the outdoor environment can suit different types of play. Outdoor play environments for children should be more stimulating, different types of themed spaces are useful, as is the integration of unusual play equipment, water, vegetable or herbs to be grown by the children themselves (Hebert, 2003).

Children's gardens can be designed to be any shape, size, or theme and they can make a space very special. Sensory gardens are carefully designed areas dedicated to engage the senses. These sensory experiences as part of the therapeutic process, can be very influential, because nature is beneficial to health and well-being. This allows children and adults to improve the elements of their cognitive function while in a safe and relaxing environment. They may be designed for just one sense, such as a fragrance garden, or edible garden (which allows children to grow their vegetables, fruits, and herbs). A sensory garden can be designed for the stimulation of all five senses.

The Sense of Sight: Contrasting elements of color, form, movement, light, and shadow add to our sensory experience when we look at a beautiful garden. Creating a balance between energizing colors and restful, soft colors to avoid overstimulation is important. Accessories like gazing balls, mirrors, and sculpture add to the visual effect.

The Sense of Hearing: Some sounds in a sensory garden occur without planning—the wind through leaves, for example or leaves on the ground when a child crunches them underfoot. The variety of sounds can be enhanced by including water elements and wind chimes.

The Sense of Touch: Children naturally reach out and touch things, when considering touch, we think texture, so including soft flowers, fuzzy leaves, and smooth stones to a sensory garden can stimulate one's sense.

The Sense of Smell: When planning the sensory garden, think about both subtle and strong smells that a child can explore. Some plants release their scent when the leaves or petals are crushed. Fragrant blooms shouldn't be placed too close together. Many herbs have wonderful aromas: rosemary, lemon verbena, lavender, and chocolate mint for example. (Day, 2007)

The Sense of Taste: Everything in a garden for children should be non-toxic. A child should explore tastes in the garden, so it is important to grow edible flowers, strawberries, blueberries, vegetables, and herbs—an early introduction to fresh, healthy food helps young children as they begin to make their own food choices. They should be separated from non-edible ones in a designated area.

5 Conclusions

Most of the learning and play environments that are available for children today are not designed for the specific needs of disabled children. As architects we have to design environments that can stimulate, heal and aid the lives of children with disabilities, enabling them to cherish their rights to education alongside their peers.

Exploring and understanding the different types of sensory and/or physical disabilities is a crucial step towards designing environments for them. Understanding the needs of children with physical disabilities seems easier, as we can visibly perceive the obstacles they face. For example, a child using a wheelchair finds it difficult to use stairs, to open a heavy door or some spaces become too small for wheelchairs to maneuver. As well as a child with visual impairments uses hands or ears for orientation so we need to consider the use of different textures, smells, or audio signals to help their way finding. But, designing for autism and understanding how the user experiences space, seem to be the hardest parts of designing inclusive schools. An attempt to present the sensory perception issue of autism visually through pictures was made for the purpose of comprehending the way the autistic individual sees space.

Schools need to have flexibility for the ever-changing and different needs of disabled children to be accommodated appropriately. If the environment allows disabled children to socialize, learn and play beside their neurotypical peers, will help them build a better self – esteem and enable them to plan a happier future. However, when meeting the needs of some pupils we need to make sure not to disadvantage others. For example: using stimulation may advantage some pupils with autistic disorder, but using extreme stimulation with strong colors might not be preferable to hypersensitive children who require low-sensory-stimuli spaces. Some finishing materials could benefit some pupils but disadvantage others. To this regard using carpet as a flooring material for good acoustics in classrooms which may not be appropriate for pupils who use wheelchairs. Sliding folding partitions between spaces can increase flexibility, but it can be difficult to provide adequate sound insulation, especially for hearing-impaired children.

It is extremely difficult not to say impossible to find a model to accommodate all pupils, but a variety of spaces, paths, materials and colors can help towards meeting everyone's needs and designing inclusive environments.

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